SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT *ENGINEERING and COMPLIANCE* **APPLICATION PROCESSING AND CALCULATIONS**	PAGES 10	PAGE 1
	APPL. NO. Below	DATE 11.21.09
	PROCESSED BY R. Loof	CHECKED BY

Rohr, Inc.
8200 Arlington Ave.
Riverside, CA 92503
ID no.: 800113

Title V Permit Revision Application:
A/N 503426:

PERMIT TO CONSTRUCT

EQUIPMENT DESCRIPTION:

Equipment	ID No.	Connected To	Source Type/ Monitoring Unit	Emissions	Conditions
Process 20: LASER CUTTING					
CUTTER, R & D LASER, MODEL NO. ASC-3-SPI-20, 220 WATTS MAXIMUM Reference:A/N: 503427	D253	C254		PM: RULE 405	B59.10, C1.20, D323.1, E57.1, E147.1, E193.2
DUST COLLECTOR, FUMEX, FA1, WITH ONE POLYESTER PREFILTER, ONE MERV 11 PANEL FILTER, ONE HEPA, & ONE 5 POUND ADSORBER (CARBON AND ALUMINA IMPREGNATED WITH POTASSIUM PERMANGANATE) Reference:A/N: 503428	C254	D253		PM: RULE 404	C6.19, D90.2, D322.4, D381.2, E102.1, E193.2, K67.1

Laser Cutter
Conditions:
B59.10 The operator shall not use the following material's in this device:

Materials containing any toxic air containants (TAC) listed in Table 1 of Rule 1401 except methyl ethyl ketone, with an effective date of June 5, 2009, or earlier.

C1.20 The operator shall limit the material processed to no more than 15 lb(s) in any one calendar month.

For the purposes of this condition, material processed shall be defined as the total weight of material being cut by the laser.

For the purpose of this condition, material processed shall be defined as reisn impregnated carbon fiber, resin impregnated fiberglass, epoxy film adhesive, and peel ply material.

To comply with this condition, the operator shall maintain records of the type of material used, total length, width and thickness of the material being cut.

The operator shall maintain records in a manner approved by the District, to demonstrate compliance with this condition.

D323.4 The operator shall conduct an inspection for visible emissions from all stacks and other emission points of this equipment whenever there is a public complaint of visible emissions, whenever visible emissions are observed, and on an annual basis, at least, unless the equipment did not operate during the entire annual period. The routine annual inspection shall be conducted while the equipment is in operation and during daylight hours.

if any visible emissions (not including condensed water vapor) are detected that last more than three minutes in any one hour, the operator shall verify and certify within 24 hours that the equipment causing the emission and anu associated air pollution control equipment are operating normally according to their design and standard procedures and under the same conditions under which compliance was achieved in the past, and either;

1) Take corrective action(s) that eliminate the visible emissions within 24 hours and report the visible emissions as a potential deviation in accordance with the reporting requirements in Section K of this permit; or

2) Have a Carb-certified smoke reader determine compliance with the opacity standard, using EPA Method 9 or the procedures in the CARB manual "Visible Emissions Evaluation", within three business days and report any deviations to AQMD.

The operator shall keep the records in accordance with the recordkeeping requirements in Section K of this permit and the following records;

1) Stack or emission point identification
2) Description of any corrective actions taken to abate visible emissions
3) Date and time visible emission was abated, and
4) All visible emissions observation records by operator or a certified smoke reader.

E57.1 The operator shall vent this equipment toa na air pollution control device which is in full use and which has been ussied a permit to operate by the Executive Officer whenever it is in operation.

E147.1 The operator shall only conduct the processing of resin impregnated carbon fiber, resin impregnated fiberglass, epoxy film adhesive, and peel ply material in this equipment.

E193.2 The operator shall construct this equipment according to the following requirements;

This permit shall expire if the construction of this equipment is not complete within one year from the date of the issuance of this permit unless an extension of time has been approved in writing by a District representative.

The operator shall notify a District representative when construction has been completed.

Dust Collector

Conditions:

C6.19 The operator shall use this equipment in such a manner that the differential pressure being monitored, as indicated below, does not exceed 4.5 inches water column.

To comply with this condition, the operaor shall install and maintain a(n) differential pressure gauge to accurately indicate the differential pressure across the filter media.

The operator shall determine and record the parameter being monitored once every 7 days.

D90.2 The operator shall periodically monitor the hydrocarbon concentration at the inlet and outlet according to the following specifications:

The operator shall use a District approved Organic Vapor Analyzer (OVA) to monitor the parmeter.

The operator shall calibrate the instrument used to monitor the parameter in ppmv methane.

The operator shall monitor once every month

The monitoring frequency shall be reduced to at least quarterly, if three consecutive monthly monitoring show no hydrocarbon readings.

The monitoring frequency shall be increased to once every month, no later than 30 days after the discovery of any hydrocarbon readings.

The operator shall maintain records to demonstrate compliance with this condition.

D322.1 The operator shall perform a weekly inspection of the equipment and filter media for leaks, broken or torn filter media, and improperly installed filter media.

D381.2 The operator shall conduct an inspection for visible emissions from all stacks and other emission points of this equipment whenever there is a public complaint of visible emissions, whenever visible emissions are observed, and on an annual basis, at least, unless the equipment did not operate during the entire annual period. The routine annual inspection shall be conducted while the equipment is in operation and during daylight hours. If any visible emissions (not including condensed water vapor) are detected, the operator shall take corrective action(s) that eliminate the visible emissions within 24 hours and report the visible emissions as a potential deviation in accordance with the reporting requirements in Section K of this permit.

The operator shall keep the records in accordance with the recordkeeping requirements in Section K of this permit and the following records;

1) Stack or emission point identification

2) Description of any corrective actions taken to abate visible emissions

3) Date and time visible emission was abated, and

E102.1 The operator shall discharge dust collected in this equipment only into closed containers.

E193.2 The operator shall construct this equipment according to the following requirements;

This permit shall expire if the construction of this equipment is not complete within one year from the date of the issuance of this permit unless an extension of time has been approved in writing by a District representative.

The operator shall notify a District representative when construction has been completed.

K67.1 The operator shall keep records, in a manner approved by the District, for the following parameter(s) or item(s);

The name of the person performing the inspection and/or maintenance of the filter media

The date, time and results of the inspection.

The date, time and description of any maintenance or repqirs resulting from the inspection.

BACKGROUND:

Rohr submitted application nos. 503426 (Title V revision), 503427 (Laser Cutter #2) and 503428 (Dust Collector) on November 5, 2009. The laser cutter and dust collector are essentially identical to devices D248 and C249 and will be subject to same conditions as these devices.

Rohr is a RECLAIM/Title V facility. A Title V renewal permit was issued to this facility on May 9, 2005. Rohr has proposed to revise their Title V renewal permit (with application no. 503426) by adding this new laser cutter and dust collector. This permit revision is considered a "de minimis significant permit revision" to the Title V renewal permit, as described in the Regulation XXX evaluation.

PROCESS DESCRIPTION:

Rohr manufactures aerospace components for commercial and military aircraft. They perform metal and composite material processing, structural bonding and assembly operations. Manufacturing processes conducted at this location include composite bonding, resin curing, core stabilizing, primer and topcoat spray painting, roller coating, degreasing, solvent cleaning, metal surface preparation, abrasive blasting and tooling preparation.

The above laser cutting equipment is used to conduct preliminary testing and collecting necessary data for building much larger size equipment to be used for a full production in the future. The laser cutter is used to cut test panels which are representative of manufactured aircraft parts and are comprised of resin impregnated carbon fibers, resin impregnated fiberglass, epoxy film adhesive and peel ply epoxy resin film.

The volume of material removed has been determined to be 0.753 in^3 for resin impregnated carbon fiber, 0.03 in^3 for resin impregnated fiberglass, 0.06 in^3 for adhesive film and 0.045 in^3 for peel ply material. Based on the individual densities of each material, the total amount of material removed per panel is 0.0459 pounds. At the processing rate of ten panels per day, the total amount of material removed will be 0.459 pounds. No more than ten panels will be processed per day since the processing time takes anywhere from one to three hours per panel. The laser cutter is operated up to 20 hr/day, 7 day/wk and 52 wk/yr.

EMISSIONS CALCULATIONS:

Laser Cutter:

PM10 Emissions:

Operating the laser cutter results in particulate matter emissions. For PM10 emission estimates, it is assumed that 99% of material removed will be PM10 emissions, the remaining 1% contributes to VOC emissions.

Processing rate = 10 panels per day, 1 panel per hour

PM10 control efficiency = 99.97% (HEPA)
Uncontrolled panel PM10 emissions = 0.0459 lb/panel x 0.99 = 0.0454 lb/panel
Uncontrolled daily PM10 emissions = 0.0454 lb/panel x 10 panel/day = 0.454 lb/day
Controlled daily PM10 emissions = 0.454 lb/day x (1 - 0.9997) = 1.36×10^{-4} lb/day
Controlled hourly PM10 emissions = 1.36×10^{-5} lb/hr

VOC Emissions:
It is assumed that 1% of the material removed contributes to VOC emissions.

Processing rate = 10 panels per day, 1 panel per hour
Hourly VOC emissions = 0.0459 lb x 0.01 = 4.59×10^{-4} lb/panel
Daily VOC emissions = 4.59×10^{-4} lb/panel x 10 panels/day = 4.59×10^{-3} lb/day

RISK ASSESSMENT

Laser Cutter Risk:
The following table contain the result of a source test to determine the PM10 and TAC emissions from the Burnoff-Oven. Total material burned was approx. 0.7 lbs. The resulting TACs are the products of combustion of the test material.

Component	lbs/hour	Adjusted hourly lbs component/lbs matl	Laser TAC
PM10	0.030	0.4286	0.00986
Cyanide	0.000320	0.000457	0.000105
Benzene	0.00023	0.000329	0.0000756
Toluene	0.00042	0.0006	0.000138
Xylenes	0.00028	0.0004	0.000092
Methylene Chloride	0.00075	0.00107	0.000246
Vinylidene Chloride	0.0019	0.00271	0.000624
Hexavalent Chrome	0.00000011	0.000000157	0.0000000361
PAH's	0.000000014	0.00000002	0.0000000046

The laser's TAC emissions were based on the TACs from the burnoff oven. The burnoff emissions were adjusted by dividing the hourly rate by the weight of material burned (0.7 lbs). This adjusted hourly was then multiplied by the total hourly weight of material burned by the laser operation (0.459 lbs/day/20 hrs/day = 0.23 lbs/hr)

Methyl ethyl ketone is the only Rule 1401 toxic air contaminant (acute) listed in the material safety data sheets for the test panels. Assuming that all of the VOC emission emitted during the cutting process is MEK.
Daily VOC(MEK) emissions = 4.59×10^{-4} lb/panel x 10 panels/day = 4.59×10^{-3} lb/day
Hourly: 4.59×10^{-4} lbs/hr

Risk screening was performed using the Risk Assessment spread sheets in the appendix which demonstrated passage of Tier 1 with the following results:

Cancer/Chronic ASI	Acute ASI
8.00E-01	1.12E-04
Passed	Passed

RULE ANALYSIS

RULE 212 (c)(1): This section requires a public notice for all new or modified permit units that emit air contaminants located within 1,000 feet from the outer boundary of a school. The facility is not located within 1,000 feet of the outer boundary of a school.

RULE 212(c)(3): This section requires a public notice for all new or modified permit units with increases in emissions of toxic air contaminants listed in Table I of Rule 1401 resulting in a cancer risk equal or greater than one in a million. The proposed addition of the new laser cutter with PM10 and VOC control systems will result in a slight increase in toxic emissions. However, the increase is negligible and there will not be an increased MICR in excess on one in a million and the chronic/acute health hazard risk from this project will remian below 1.0.

RULE 212(g): This section requires a public notice for all new or modified sources that result in emission increases exceeding any of the daily maximums as specified by Rule 212(g). The proposed addition of the new laser cutter will not result in an emission increase exceeding the daily maximums.

	Maximum Daily Emissions					
	ROG	**NO_x**	**PM_{10}**	**SO_2**	**CO**	**Pb**
Emission increase	0	0	0	0	0	0
MAX Limit (lb/day)	**30**	**40**	**30**	**60**	**220**	**3**
Compliance Status	Yes	Yes	Yes	Yes	Yes	Yes

RULEs 401 & 402: Particulate emissions from the laser cutter are being vented to an air pollution control system consisting of a prefilter, a panel filter, and a hepa filter for particulate emission comtrol and a carbon adsorber for any VOC emission control. With the proper operation and maintenance, compliance with this rule is expected.

RULE 404: The flow rate from the multi-stage filtration control equipment is specified at 165 cfm. Particulate emissions are 1.36E-05 lbs/hr.

1.36E-05 lbs/hr(hr/60min)(7000gr/lb)/(165ft^3/min) = 9.62E-06 gr/ft^3

Rule 404 specifies that the particulate emission concentration for air flow rates of less than 883 cfm shall not exceed 0.196 grains/cf. The emissions from the multi-stage filtration unit will be less than this limit. Complaince with this rule is expected.

RULE 405: The particulate emissions from the laser cutter are less than the limits specified in this rule of 0.99 lbs/hr. Compliance with this rule is expected.

RULE 1303(a): PM emissions from the laser cutter are vented to a dust collector and HEPA filters. Potential PM10 emissions are controlled by 99.97%. VOC emissions are controlled by a carbon adsorber which satisfies BACT requirements.

RULE 1303(b)(1): Laser cutter hourly PM10 emissions are 1.36E-05 lbs/hr which is below 0.41 lb/hr. Modeling is not required.

RULE 1303(b)(2): Emission offsets are not required since the emissions associated with this equipment is less than 0.49 lbs/day.

RULE 1303(b)(4): The facility is expected to be in full compliance with all applicable rules and regulations of the District.

RULE 1401: Toxics: Rule 1401 contains the following requirements:

1) *(d)(1) MICR and Cancer Burden* - The cumulative increase in MICR which is the sum of the calculated MICR values for all toxic air contaminants emitted from the new, relocated or modified permit unit will not result in any of the following:
   (A) an increased MICR greater than one in one million (1.0×10^{-6}) at any receptor location, if the permit unit is constructed without T-BACT;
   (B) an increased MICR greater than ten in one million (1.0×10^{-5}) at any receptor location, if the permit unit is constructed with T-BACT;
   (C) a cancer burden greater than 0.5.

2) *(d)(2) Chronic Hazard Index* - The cumulative increase in total chronic HI for any target organ system due to total emissions from the new, relocated or modified permit unit will not exceed 1.0 at any receptor location.

3) *(d)(3) Acute Hazard Index* - The cumulative increase in total acute HI for any target organ system due to total emissions from the new, relocated or modified permit unit will not exceed 1.0 at any receptor location.

According to the information that were submitted with these applications, Rohr, Inc. will be using material that contains toxic air contaminants (TAC) identified in Table 1 of Rule 1401. However, as indicated in the emission calculations, the MEK emissions from the laser is negligiable and passes a Tier I health risk assessment.

The laser cutter will be conditioned such that it will not be permitted to use any material containing any toxic air contaminants listed under Rule 1401 as amended June 5, 2009 except methyl ethyl ketone. Compliance is expected.

Risk screening was performed using the Risk Assessment spread sheets which demonstrated passage of Tier 1 with the following results:

Cancer/Chronic ASI	Acute ASI
8.00E-01	1.12E-04
Passed	Passed

REGULATION XXX

The proposed project is considered as a "de minimis significant permit revision" for non-RECLAIM pollutants and hazardous air pollutants, and a "minor permit revision" for RECLAIM pollutants to the Title V permit issued to this facility.

Rule 3000(b)(6) defines a "de minimis significant permit revision" as any Title V permit revision where the cumulative emission increases of non-RECLAIM pollutants or hazardous air pollutants (HAP) from these permit revisions during the term of the permit are not greater than any of the following emission threshold levels:

Air Contaminant	Daily Maximum (lb/day)
HAP	30
VOC	30
NOx	40
PM10	30
SOx	60
CO	220

Rule 3003(j) specifies that a proposed permit for the initial Title V permit shall be submitted to EPA for review. To determine if a project is considered as a "de minimis significant permit revision" for non-RECLAIM pollutants or HAPs, emission increases for non-RECLAIM pollutants or HAPs resulting from all permit revisions that are made after the issuance of the Title V renewal permit shall be

accumulated and compared to the above threshold levels. This proposed project is the 10th permit revision to the Title V renewal permit issued to this facility on May 9, 2005.

Revision	HAP	VOC	NOx*	PM10	SOx	CO
Previous Permit Revision Total	0	4	14	0	0	11
7th Permit Revision; Addition of laser cutter (D253), Dust collector (D254)	0	0	0	0	0	0
Cumulative Total	0	4	14	0	0	11
Maximum Daily	30	30	40*****	30	60	220

* RECLAIM pollutant, not subject to emission accumulation requirements

Since the cumulative emission increases resulting from all permit revisions are not greater than any of the emission threshold levels, this proposed project is considered as a "de minimis significant permit revision" for non-RECLAIM pollutants or HAPs.

RECLAIM Pollutants

Rule 3000(b)(12)(A)(v) defines a "minor permit revision" as any Title V permit revision that does not result in an emission increase of RECLAIM pollutants over the facility starting Allocation plus nontradeable Allocations, or higher Allocation amount which has previously undergone a significant permit revision process.

Since NOx is a RECLAIM pollutant for this facility, a separate analysis shall be made to determine if the proposed permit revision is considered a "minor permit revision" for RECLAIM pollutants. The proposed equipment additions will not result in an increase in NOx emissions. As a result, this proposed project is considered as a "minor permit revision" for RECLAIM pollutants.

RECOMMENDATION

The proposed project is expected to comply with all applicable District Rules and Regulations. Since the proposed project is considered as a "de minimis significant permit revision" for non-RECLAIM pollutants and hazardous air pollutants, and a "minor permit revision" for RECLAIM pollutants, it is exempt from the public participation requirements under Rule 3006 (b). A proposed permit incorporating this permit revision will be submitted to EPA for a 45-day review pursuant to Rule 3003(j). If EPA does not raise any objections within the review period, a revised Title V permit with conditions (as specified in the sample facility permit) will be issued to this facility.